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ABSTRACT

This paper describes some development and initiatives in educational technology in Brunei Darussalam. The benefits of educational technology to the teaching-learning process are listed, and a brief description of Brunei, its schools, educational policy, and bilingual education system is given. Topics include: (1) media approaches to teaching, especially the use of educational television; (2) development of Educational Media Resources Units (EMRU); (3) a computer studies course for lower secondary school students; and (4) teacher training programs, including a mandatory course in educational technology. The conclusion notes that, because this is an age of accelerated technological advances, educators have a critical responsibility to prepare students for a future in which they will be constantly tested by change and challenged with new information. (MAS)

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Development and status of Educational Technology in Brunei Darussalam

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by

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ABSTRACT

The educational policy of Negara Brunei Darussalam aims to create the most effective system of education for the country. It has undergone a number of changes in the course of adopting to the socio-economic situations of the country. Means to improve the quality and promote the efficiency of education has always been encouraged. These includes setting up of educational media and resource centres, training teachers on the utilization of media and improved teaching methods in variety of subjects. The country also realized the impact of information technology and its profound changes in business, leisure, education, employment and other aspects of social and occupational life. Attempts are being made in the past to introduce computer literacy courses at various levels of school education. Recently, phased implementation of computer studies courses in lower secondary schools has been introduced with the aim of giving pupils both practical skills and a knowledge of social aspects of computer technology. This paper describes some development and initiatives in Educational Technology which are taking place in various forms in Brunei Darussalam.

Educational Technology: A question of meaning

While it is delicate to draw precise boundaries and interpret the meaning of educational technology, the generally accepted view is that, it is a process as well as a product attempting to improve instruction. The interpretation of the term "Educational Technology" has been a formidable task since the subject itself covers diverse collection of statements concerning its nature and functions. Saettler (1990) stated that the meaning of educational technology is interwinded with certain historical conceptions and practices or bound to specific philosophical and psychological theory as well as with particular scientific orientations.

On the other hand, Heinich (1989) adapted the definition of technology, applying it to instruction and defined educational technology as 'the application

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of scientific knowledge about human learning to the practical tasks of teaching and learning'. Thus, technology of instruction 'is a particular, systematic arrangement of teaching and learning into practice in a predictable, effective manner to attain specific learning objectives.'

Over the years, improvement has been made including programmed instruction, computer mediated learning audio-tutorial systems, and modular approach. Some of those innovations utilize hardware and some use printed text. However the common approach here is that the developmental processes of these materials focus on the learner and steps involved in structuring is based on scientific principles of human learning.

There are indications that educational technology is narrowly defined in some contexts, and others are much too broad. Spencer (1988) wrote that educational technology is composed of at least two overlapping subsets: technology in education and technology of education. The tools-technology, sometimes known as the hardware approach to educational technology, but more commonly known under the title audio-visual aids or instructional media, may be thought of as technology in education. Whereas, the educational application of knowledge from the behavioral sciences, such as psychology, forms the basis of a technology of education.

There are some arguments that due to the current changes in the field, the traditional means of interpreting educational technology is outmoded and this needs of revision. Others suggested that too much use of technology is experiencing dehumanization in education. However the application of technology often proved that there are substantial benefits to the teaching-learning process (Sharom, 1987). These can be noted as follows.

1. Instructional media and resource based learning can help to promote the 'discovery' or 'inquiry' approach to learning.

2. Individualized instruction designed to suit the level, interest, experience, ability and pace of individual students can served best leading to a productive instructional strategy.

3. Devices like computers as a medium and delivery system accommodates repeated tasks of drill and practice exercises with less anxiety.

4. If properly planned and used, media can supplement and support the activities of a teacher. It also transforms the traditional role of a teacher as information provider to a more challenging role of a manager in an instructional process.

As stated before, the domain of educational technology and its concepts are varied and widespread. This paper covers attempts to improve the quality and promote the efficiency of teaching, including the use of media and resources in educational system of Brunei Darussalam.

The Context

Brunei Darussalam is the least populated country in ASEAN with approximately 260,000 population, but it has the highest GNP due to its oil wealth. The smallness of the country is reflected in the number of its schools and teachers (see Figure 1).

District	Primary				Secondary			
	Schs	Students	Teac	Ratio	Schs	Students	Teac	Ratio
Brunei	56	21585	1324	16.3	11	13658	1045	13.0
Tutong	33	4586	440	10.4	3	2879	246	11.7
Belait	15	4369	299	14.6	3	2814	202	13.9
Temburong	13	1596	135	11.8	1	798	64	12.4
TOTAL	117	32136	2198	14.6	18	20149	1557	12.9

Figure (1) Number of schools, students and teachers in Brunei *

* Source: Statistical yearbook 1991, Ministry of Education, Government of Brunei

The school system in Brunei is divided into Government schools and colleges and non-Government schools. All children enters the Government school system at the age of five. They stay at the pre-school level for one year before proceeding to the first year of primary school. Education is provided free for citizens who attend Government schools. Tuition, textbooks, transport where necessary, board and lodging in hostels for students from rural areas, food in urban and sub-urban schools and lunch in remote rural schools are all provided free to pupils who are citizens.

The national education policy of Brunei Darussalam aims to create the most effective system of education for the country. It is accepted that education is an on-going endeavor that seeks to develop the all-round potentials of the individual, in order to bring into being an educated and devout, as well as dynamics, disciplined and responsible people. Their virtues should be complementary with the needs of the State and founded on spiritual values that are noble in the sight of Allah. The policy forms a starting-point that is oriented towards the specific character of Brunei Darussalam with emphasis on faith and obedience to Allah, priority for the Malay language and loyalty to Monarch and State. [1]

To meet the national education policy, Malay Islamic Monarchy (MIB) concept is implemented in the school curriculum. It is intended to orientate education towards bringing into existence a pool of manpower skilled in many fields as well as aiming to ensure unity, an Bruneian identity, peace and security, and communal well-being and happiness in Negara Brunei Darussalam. [2]

Another important concept of education in Brunei is bilingual system. The bilingual system is a mean of ensuring the sovereignty of the Malay language, while at the same time recognizing the importance of the English Language. Subjects that are not closely related to the majority of discipline studies at the higher levels of education overseas are taught through the Malay Language, while subjects that are heavily dependent on the English language, are taught through the English language.

The bilingual system of education has been introduced by stages, according to the resources available until it's full implementation as the national system of education. However, the compulsory study of the Malay language

by all students is maintained in such a way as to ensure the continued use and growth of the language. [3]

Media Approaches to teaching

Early attempts to introduce various forms of educational technology have been recorded in some scholarly works in Brunei context. According to some literature, the initial planning of Educational Television (ETV) was done as early as 1974 by the personnel from Education and Broadcasting Departments and started transmission in 1978. The main objective of having ETV program was to improve teaching-learning process in majority of classes where performances of students were found to be unsatisfactory. Another objective is to impart knowledge to the general public.

The introduction of ETV in Brunei Darussalam was a joint effort of educators of broadcasters. Education Department was responsible for production of ETV programmes and their reception in schools when the Radio Television Brunei was responsible for providing physical facilities, settings, technical support and personnel for production and broadcasting operations.

Yakob (1987) has explored the multi-media approach that utilizes various forms of audio-visual aids in teaching of science in Brunei Primary schools. In his study, he discussed the development and use of broadcast television and its supporting materials.

With Brunei's national educational system where syllabus, curriculum and time table are uniform throughout the State, television lessons are more commonly geared to direct teaching. In the first eight years, ETV produced 12 series of programmes, 8 series for schools and 4 for general audiences.

With the development and widespread availability of video recorders, the impact of ETV was changed, particularly in a small nation where geographic boundaries and close together. Planners need to reconsider the overall approach of ETV transmission and in 1986, after (8) years of operation, ETV stopped its transmission.

Research study on the use of ETV programmes for science education at primary levels seems to be effective despite the facts that some technical difficulties were encountered in some of the programs. Feedback questions from the teachers who utilized ETV programs generally indicated that those programs were appropriate and relevant. This may be due to the fact that the selection of content is based on the school syllabus and aimed to supplement their classroom teaching.

Educational Media Resources Unit

The existence of Educational Media Resources Unit (EMRU) is one of the important factor in application of educational technology in Brunei Darussalam schools. Wan (1989) traced back the history and setting up of EMRU under the Curriculum Development Department (CDD). While educational media services function was existed sometime ago, evolution to EMRU was based on the amalgamation of the Educational Resource and Library Section with the ETV section which begun in 1986. The EMRU was established with a set of functions.

One area deals with producing general publications concerning primary and secondary schools and publications on matters pertaining to the Ministry of Education, such as curriculum changes, implementation of educational policy, matters related to extra curricular activities etc. so as to keep teachers and the public informed. It also produces educational programmes in cassette tape forms, slide-tape programmes (audio and video) and preparing printed materials such as charts, flash cards etc. to aid teachers in their teaching.

Another task of EMRU is to provide educational resource library service specifically to the Curriculum Development Department and also to other departments in the Ministry of Education. The staff of EMRU also give advice and guidance on library system in primary and secondary schools.

Another aim is to preview and select suitable programmes from overseas as well as editing, altering and dubbing wherever necessary and to cooperate with other Units of Curriculum Development Department in implementing programmes and activities of the curriculum.

EMRU has become a model for the use of learning resource center suitable for the schools to adopt such approach. Improvements on frequency of utilization in AV technology are also achieved in recent years.

Computer Education

The Ministry of Education realized the need for a more formal approach to computer literacy. It recognized that the fabric of social and professional life in Brunei has been fundamentally affected by the emergence of computer technology. Many government departments are using more and more computers aimed at improving the efficiency of administration, management and decision-making. There is an immediate implication that more and more Bruneians ought to be computer literate and possess at least basic skills in the use of the computer [4].

In 1992, the Ministry initiated a syllabus for the introduction of Computer Studies for Lower Secondary students. A Committee was formed comprising senior members of the Curriculum Development Centre, Examinations Department, Schools Inspectorate Department and experienced computer teachers from government Secondary Schools and a representative from the University, was formed. The Committee came up with a syllabus for Introductory Computer Studies course aimed at lower secondary levels 1, 2 and 3 to cater for students in the 13-15 age brackets.

The course aims to give the students a knowledge and awareness of the nature of information technology and its impact upon society. By following the course, the students are given a chance to appreciate why Computer Technology is used, how it is finding a place in almost every type of work, and some of the consequences of its introduction. The syllabus also concentrates on the practical aspects of Computer Technology and emphasies its importance in developing skills which will enable students to make decisions, solve problems and use language to communicate these processes [5].

The course will be introduce over three years and each level of the course aims to improve knowledge and skills in the use of computers. Another feature of the course is to lay a foundation for the Computer Studies G.C.E 'O' level and encourages students to take up further in their careers [3]. A textbook for students

and teachers guide was also developed with the assistance of the commercial publisher.

The Ministry of Education is expanding the school system by building schools. All of the newly built secondary schools have computer laboratories equipped with computers. All of the computers now available in the schools are IBM compatible machines. At the beginning of 1994, the first year Introductory Computer Studies became available as an optional subject and was offered in approximately (11) secondary schools.

Teacher Training Programmes

Application of educational technology in schools begins with preparation of teachers. Most of the Universities and teacher training institutions in South East Asia consider educational technology as an important component in teacher education programmes and many has adopted such approach as pedagogic skills required for teacher trainees and to assist in their professional career. (Myint 1989).

In its efforts to help improve the economic, social and cultural development of the nation, the Universiti Brunei Darussalam was set up in 1985 and aim to produce relevant manpower equipped with the highest possible qualifications and reflecting the special character and needs of Brunei Darussalam.

A course in educational technology is a compulsory for all teacher training programs and it aims to introduce a broad concept of the field, development and its utilization for the improvement of teaching and learning. Students are also to be familiarized with system model and systematic approach to instruction and the integration of media and learning resources in their teaching activities. Courses are offered at different levels in various teacher education programs.

The courses cover wide range of topics that includes the role of educational technology in improvement of teaching learning activities, issues in instructional design process and its applications, instructional resources and their features, design principles and attributes of media materials, and production and presentation techniques. The concepts of resource based learning is also introduced.

In some programs, emphasis is made on message design, perception and communication theories and criteria for selection, evaluation and production of teaching aids that incorporate elements and principles of instructional design. Some aspects of technology based learning including computer mediated instruction and multimedia approached are also discussed.

Some elective courses such as Advanced educational technology, Information technology in education and Resource management in education are also offered in other degree programs. With the utilization of new technologies such as computers, information technology component in educational technology is becoming increasingly important. The courses in educational technology are to be reviewed and revised regularly according to the changes and trends in the field as well as to suit the needs in the schools.

Conclusion

In search of the solution to instructional problems, the concept and application of educational technology has evolved in the past years. Hawkridge (1991) expressed various challenges to educational technology. He noted the theoretical challenge from cognitive science that deals with behavioral approach in understanding human learning. The technological challenge from information technology began with the use of computers in teaching and learning and it was observed that educational technology in the future will overlap with information technology. Information technology in education seems a logical extension of educational technology in which educators can exploit its special characteristics for the sake of education.

The developments in satellite communications, microelectronics and multi-media are transforming the aspects of educational technology. As educators in an age of accelerated technological innovations, there is a critical responsibility to prepare our next generation of students for the future who will be constantly tested by change and challenged with new information.

Notes

[1] Ministry of Education, Education in Brunei Darussalam, Brunei 1990, pp 2

[2] Ibid, pp 59

[3] Ibid, pp 52

[4] Curriculum Development, Ministry of Education, Computer studies (Introductory) Syllabus for Lower Secondary Schools, 1993

[5] Ibid

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